

## **RQ11 Abstract**

Prof. W.L. Johnson  
138-78 Keck Laboratory  
Calif. Inst. of Tech.  
Pasadena, CA 91125  
[wlj@hyperfine.caltech.edu](mailto:wlj@hyperfine.caltech.edu)

### **title: Deformation, Flow, and Shear Bands in Metallic Glasses**

At temperatures above the glass transition, metallic glass forming liquids exhibit Newtonian flow at low strain rates and non-Newtonian flow at higher strain rates. Flow localization occurs at still higher strain rates. Experimental studies of deformation and flow have allowed the development of a simple "Self Consistent Free Volume Model" for flow localization. Below  $T_g$ , flow is always found to be spatially localized into shear bands and the nucleation and propagation of these shear bands control the mechanical properties of solid bulk metallic glasses. The talk will discuss various aspects of shear banding and the development of strategies to enhance the mechanical properties of metallic glasses based on the control of shear banding.